Controlled traffic for organic farming

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Principle of controlled traffic
Results of research in the 1970’s en 80’s

- Approximately 3 x as much workable days in spring
- 40% more air in wet soil (field capacity)
- 12% more fine (clay)soil in potato ridges
- Up to 10% yield increase for root crops
- 15 - 50% less energy requirement for soil tillage
- In that time economically not feasible
System BEKO (Korteweg & van Beek)

- **Geotec positioning system, ± 5 cm accuracy**
- **Rubber tracks 30 cm wide**

Front-mounted goosefoot cultivator for extra weed control in spring (stale seedbed)

Ploughing and harvest not (yet) in controlled traffic system
Expected benefits of CTF in organic farming

• Excellent soil structure
  – high uptake efficiency of nutrients, especially Nitrogen
  – less greenhouse-gas emission (methane, N₂O)
  – vital crops, less susceptible to diseases
  – high crop yields
  – good product quality
More benefits of wide-track traffic lanes

- Flat soil surface without wheel ruts
- Good tractor stability: accurate control of position & depth
- More workable days

Increased potential for:

- stale seedbed method
- timely and precise mechanical weed control
- intra-row weed control
- liquid manure application in spring
Expected benefits of accurate GPS

- makes controlled traffic possible
- large working width possible without problem of connecting to adjacent rows
- high forward speed possible
- possible to work at night

High productivity of labour and machinery and high annual use of machinery
Current research (BEKO system)

• Objectives
  – Give proof of benefits in practical organic farming and further development

• Activities
  – Compare CTF and “conventional organic farming” in 4-year field experiment
  – Economic calculations
  – Develop soil friendly harvest & minimum tillage in system

• Research partners
  – Wageningen-UR (A&F, PPO, PRI) and Korteweg c.s.

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